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Hardness Measuring Device HRC3070

Operating Instructions

Edition V2.0

Please read these instructions carefully, before operating.

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General

Thank you for choosing the **Nitronic HRC 3070**.
To obtain the best possible performance, please read these operating instructions carefully. All claims under the warranty will become void in the event of damage caused by failure to comply with the instructions or opening the **Nitronic HRC 3070**. We accept no responsibility for consequential damages.

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Product description

The **Nitronic HRC 3070** is a very lightweight, easily portable hardness measuring device for measuring hardness in any location. It is ideal for mobile use in the field, where fast, accurate hardness readings are essential.

The **Nitronic HRC 3070** functions according to the **rebound method**, a dynamic hardness measurement technique. An impact body (hard metal ball) is propelled against the surface to be tested by spring force. The measurement value is the loss of speed between the impact and rebound of the penetrator. The loss of speed is directly related to hardness taking account of the mass and surface quality of the workpiece. The rebound method provides a high degree of precision and reproducibility of the measurement, and thus also high testing reliability. The following is a brief overview:

- Large measurement range
- Measurement possible in difficult-to-access positions
- High degree of accuracy +/- 1 HRC
- Direct display of hardness values in **HRC**
- Automatic switching on and off
- Simple handling and low testing cost
- Suitable for metallic materials
- For workpieces that are heavy or already fitted

Commissioning

When using the **Nitronic HRC 3070** for the first time or after an extended period of non-use (longer than three months) insert batteries according to the polarity indicated.

- Twist screw cap (1) counterclockwise to unscrew and remove (Fig. 1).

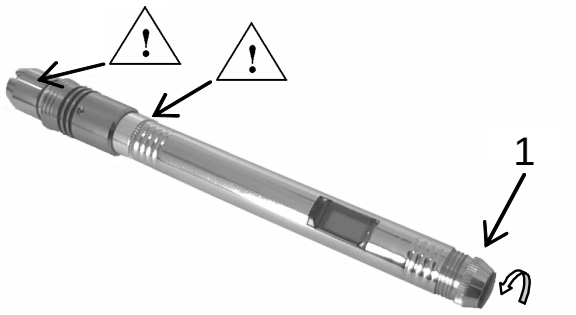

Fig. 1 Removing the screw cap

To prevent consequential damage the **Nitronic HRC 3070** must never be opened at the position marked ⚠ (Fig. 1)

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- Insert batteries in the screw cap (1) according to the polarity indicated and tighten screw cap (1) again by twisting clockwise (Fig. 2).

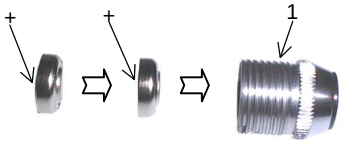

Fig. 2 Inserting the batteries

⚠ If the **Nitronic HRC 3070** is not going to be used for an extended period, take out the batteries to prevent damage due to battery leakage.

Operation

- Slide lock (2) back as far as it will go (Fig. 3).

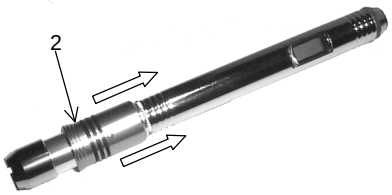

Fig. 3 Loading the HRC3070

- Place the **Nitronic HRC 3070** with the tip (3) on the material to be tested and press down on lock (2) to trigger the impact (Fig. 4).
- Read off the hardness value in **HRC** and take three to five further measurements to obtain an average (Fig. 5).

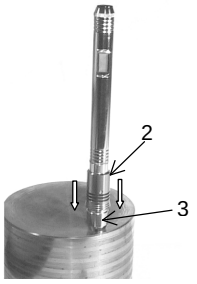

Fig. 4 Triggering the impact

Fig. 5 Hardness valuet

⚠ To prevent contamination the **Nitronic HRC 3070** must only be stored with the spring tension released.

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Working area

⚠ In order to obtain very precise measurements, the **Nitronic HRC 3070** must be kept completely still during the triggering process. The angle of inclination of the test piece must be no greater than **30°**.

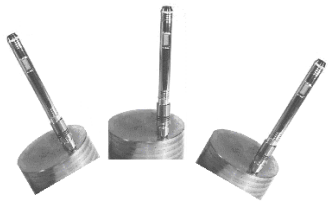

Fig. 6 Inclination max.30°

The weight of the workpiece is very important in the dynamic measurement procedure. It should weigh at least 5 kg. Workpieces weighing less than 5 kg must be placed on a solid support. Small parts (0.1kg) should also be stuck to the solid support with paste adhesive

Fault causes

Measurement surface must be absolutely free from oil and grease.

Test workpiece faults

Malfunction	Diagnosis	Remedy
Results scattered	Measuring surface dirty or pitted Uneven measuring surface	Clean, or polish surface. Polish seating surface, rectify unevenness
Results extremely scattered	Test workpiece is too light or is deflected Measurement surface is porous or spongy	Stick to a solid support with paste adhesive. Polish surface.

Penetrator faults

Malfunction	Diagnosis	Remedy
False measurement results	Indenter ball (penetrator) flattened	Replace the impact body (by **Nitronic** Representative)
	Indenter ball dirty	Clean the indenter ball

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Device faults

Malfunction	Diagnosis	Remedy
False measurement results	Bearing surface (3) pitted, dirty or dented	Protect bearing surface from damage. Clean and carefully smooth out pitting, if necessary with an oil stone.
Display dimly	Batteries too weak	Replace batteries

Operational faults

Malfunction	Diagnosis	Remedy
False measurement results.	Indentation too close to the edge.	Distance = 5 times the diameter of the indentation
Hardness value too high	Indentations too close together	Distance = 5 times the diameter of the indentation
Deviation of ACTUAL - SET value results	Test surface inclined more than 30°	Select test surface with inclination less than 30°
Measurement results scattered	Careless triggering or lateral shifting during the measurement process	Carry out triggering slowly and in a controlled way

Technical Data

Hardness scale	HRC
Indenter ball	Hard metal
Accuracy	+/- 1HRC
Measurement range	20-70 HRC
Min. weight of the workpiece	2kg on solid support 0,1kg with paste adhesive
Min. thickness of the workpiece	3 mm with paste adhesive
Min. hardness depth	1 mm
Power supply batteries	2x1.5V button cell
Ambient temperature	10°C to 30°C
Dimensions	Length 138mm Diameter 12mm
Weight	36g

We reserve the right to make technical changes at any time.

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Replacement parts, options

Replacement parts

Quantity	Description	Art. Number
1	Carrying case	010064
1	Locking button without clip	010029
1	Battery 1.5V V394	010032
1	O-ring	010310
1	Sealing cap	010038

Options

Quantity	Description	Art. Number
1	Paste adhesive	010376
1	Locking button with clip	010030
1	Adapter for sheet metal measurement	010375

Materials and hardness values

Material	*HRC*
Steel and cast iron	20 – 68
Tool steel	20 – 68
Stainless steel	20 – 62